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ABSTRACT

This paper describes the design and implementation of a networked professional development initiative for information literacy, run by DEDICATE (Distance EDucation Information Courses with Access Through nEtworks), a European Union-funded project under the Telematics for Libraries 4th Framework Program. Library and academic staff from five Central and Eastern European universities participated in the course, which is based on principles of collaborative and experiential online learning and has as its goal the development by participants of information literacy courses tailored to the needs of user groups within each of the five partner universities. The paper describes the pedagogic approach; main features of the DEDICATE course and its technological environment; and implementation and evaluation. (Contains 15 references.) (Author/AEF)

DEDICATE: A Networked Professional Development Project in Information Literacy and User Education

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DEDICATE: a networked professional development project in information literacy and user education

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Abstract

This paper describes the design and implementation of a networked professional development initiative for information literacy, run by DEDICATE ("Distance EDucation Information Courses with Access Through nEtworks"), an EU-funded project under the Telematics for Libraries 4th Framework Programme. Library and academic staff from five Central and Eastern European universities participated in the course, which is based on principles of collaborative and experiential on-line learning and has as its goal the development by participants of information literacy courses tailored to the needs of user groups within each of the five partner universities.

Introduction

The information environment is undergoing fundamental changes. Users today have rapid access to a wide range of information sources, which can be accessed in a variety of ways. Delivery of full-text materials and databases of various kinds is often direct to users' own computers. The availability of vast quantities of information coupled with different delivery forms, has increased the complexity of finding and selecting relevant, high quality information. In this context, users need networked information literacy support at the point of search; that is, via their own computer.

Meeting information literacy training needs in higher education is therefore an increasingly challenging task. As the networked information environment becomes richer and more complex, information services are faced with widespread awareness-raising and skills development needs within their learning, teaching, and research communities. At the same time, the rapid pace of change, alongside pressures on traditional face-to-face training formats and the emergence of new, networked methods for the delivery of support, means that academic liaison and learner support staff themselves need to be able to engage in continuous up-dating and professional development activities which can be tailored to their specific responsibilities and institutional circumstances.

DEDICATE ("Distance EDucation Information Courses with Access Through nEtworks") is an EU-funded project under the Telematics for Libraries 4th Framework Programme which has developed, and at the time of writing is testing, a flexible model of networked professional development in information literacy. The Project started in May 1998 and will be completed in September 1999. The model is being piloted in a Central and Eastern European setting, at four university library sites in Estonia, Hungary, Latvia and Lithuania, and at the International Centre for Information Management, Systems, Services in Torun, Poland. Development of the DEDICATE course has been co-ordinated by Chalmers University of Technology, Sweden, in partnership with the University of Sheffield, UK, the University of Linköping, Sweden, and the Helsinki University of Technology, Finland. In this paper, we describe the design and implementation of the course and our evaluation strategy.

Pedagogic approach

Our aim in designing the course has been to create an environment which encourages participants to engage in *deep learning* - which implies understanding and facilitates retention - as opposed to *surface learning* which is soon forgotten when the person moves on from the learning activity itself. Our

approach draws on principles of adult, distance, and experiential learning, underpinned by a broadly constructivist philosophy regarding the nature of the learning process. Constructivism offers a theoretical framework for the design and facilitation of learning environments which is becoming increasingly influential and is frequently invoked in descriptions of emerging approaches to Web-based learning and teaching. Much of the over-arching philosophy of constructivism is in tune with the tradition of adult and professional learning using experiential and collaborative methods, and to those drawing on work in computer-supported collaborative learning (CSCL) contexts in which a good deal of emphasis is placed on enabling learners to pursue self-managed, independent learning through asynchronous interaction [e.g. 1, 2, 3]. Key assumptions [4] of the constructivist view of learning, and some implications for the design and facilitation of learning environments, are as follows:

Knowledge is constructed through an evolving process of personal, active engagement with the external world, and is therefore not a product which can be passively received by one person from another and accumulated. Learning environments need, therefore, to encourage personal responsibility and initiative, for instance in organising learning around the identification and achievement of personal goals rather than around general topics, and in enabling learners to exercise higher-order questioning skills, and skills in critical reflection, self-management and self-monitoring. Course design and facilitation needs to engage with individuals' experiences, interests and needs and encourage ownership of, and a self-directed approach to, learning.

Knowledge is closely connected to context, in that meaning is derived from, and closely associated with, the experience through which it is acquired. Focusing on acquisition of abstract concepts is unlikely to facilitate transfer of meaning between situations and domains. Learners need, therefore, to be able to engage with the connections between concepts and context, through participation in 'authentic' learning activities which involve contextualised problem-solving.

Personal understandings are developed through social negotiation and exploration of multiple perspectives, through interaction with texts and people. Learning experiences should include opportunities for co-operative interaction with peers and tutors, for instance through collaborative problem-solving or project work.

Laurillard [5] has described the learning activities of students in higher education in terms of five interdependent aspects of the learning process:

apprehending the structure of the material, interpreting the structure and organising as a coherent whole

integrating the representation of the material with the meaning, for example using language, mathematics or classification systems

relating knowledge to experience, relating theory to practice

using feedback, both intrinsic and extrinsic - to adjust actions to fit the task goal, and descriptions to fit the topic goal

reflecting on the goal-action-feedback cycle.

We have also drawn on Marton and Booth's work [6] and previous phenomenographic work by Marton [7, 8] which emphasises the different ways in which individuals experience learning; we have aimed to take into account the impact of contextual factors such as prior educational backgrounds, personal expectations and motivations, and organisational settings on participants' understandings of learning for professional development [9]. We are aware of the need to provide "process" support - including affective support - for distance learners who might well be working in relative isolation and who may feel uncertain and confused in their learning roles.

Overall, therefore, we have tried in the design and facilitation of the DEDICATE course to emphasise the importance of offering learners the chance to engage in active, self-directed, and "authentic" or situated learning activities, and in interactive dialogue with tutors and each other. We designed the

course to include experiential learning, for example about the use of networked resources and searching for scientific or technological information.

The course

How did these underpinning philosophies translate into practice? This section of the paper highlights the main features of the DEDICATE course and its technological environment, for which we drew on work previously undertaken within undergraduate and professional development settings at the University of Sheffield [10, 11, 12] – in particular through the Electronic Libraries programme NetLinkS project [13] - and on experience gained from the Swedish distance learning INFOVISION project [14]. In terms of structure, the course was divided into five Units, each of several weeks in length:

The Internet as a learning environment

Information searching

The institutional context: reflection and planning for project work

Projects: design of an information literacy initiative

Learning and course reviews

We encouraged a mixed participation of people with library backgrounds and engineering or science backgrounds. Participants include librarians without scientific backgrounds, librarians with science and engineering degrees, and academics without library backgrounds. They were advised to spend between 6 and 8 hours per week on course activities, including regular access to the course Web site. It was essential to seek strong support from their managers, to ensure that they received work-release time and adequate technical support within their institutions; in continuing and professional education it is essential, in order to avoid unnecessary drop-outs, that participants have adequate time to cope with their learning challenge and at the same time to feel that their institution is providing care and support.

Key features of the course were:

Initial face-to-face start-up meetings. At each site, two-day workshops were arranged for course participants, local managers and tutors. At these meetings, goals for the course were discussed and participants were introduced to the learning environment, including the *Into Info* resources, the computer-conferencing system and the DEDICATE resource base (see below).

Small-scale introductory activities. During an induction period and two further modules, participants were introduced to the networked learning environment and approach, and introduced themselves to the wider group (designing HTML based personal profiles as well as posting personal introductions to the on-line forum).

They undertook a number of structured activities as individuals and in groups; activities focused on: information resource discovery in selected subject areas, and methods and models of information literacy support.

Projects. Collaborative project-work determined by local institutional needs and the professional interests of participants at each location focused on the planning and design of information literacy courses and/or materials for specific user groups within the universities.

Group-work. Groups at each of the five libraries worked both face-to-face and on-line on the small-scale projects and on projects. Each learning set was assigned a tutor, who facilitated the launch meeting and participated subsequently in discussions and co-ordination of activities, but sets were encouraged to take on much of the responsibility for managing their collaborative work. More broadly, peer support and

wider discussion were encouraged through on-line communication.

Information and learning resources. Key resources for the course were a number of Web-based user education and training resources developed by the EU Telematics for Libraries Third Framework project, EDUCATE (1994-7) [15]. The EDUCATE project led to the production of the *Into Info* programs. So far, these have been produced in eight subject areas: *Architecture, Chemistry, Electrical and Electronic Engineering, Energy, Environmental Information, History of Science and Technology, Medicine,* and *Physics* and there is on-going work on the production of modules in civil engineering, and mechanical engineering. The programs, which provide a means for learning about and accessing relevant information sources, have been designed to meet the needs of scientists, engineers, doctors, teachers and librarians. They can be used for self-instruction, as a resource for formal campus-based or distance learning courses, and as rapid access tools to information sources. Participants on the DEDICATE course were able to draw on them to enhance their own resource awareness and skills in information seeking in these subject areas, and to consider how they might be used within their own training initiatives and/or might provide design models for similar, home grown learning resources in other subject areas. In addition, a collection of information resources comprising annotated links to external Web documents, links to a small range of materials produced specifically for the course and to full-text versions of key readings, and bibliographic references to off-line documents, was available. Resources generated by participants were also placed on the course Web site and used as learning resources.

Tutoring and technical support. Tutoring and technical support was distributed geographically; members of the support team were located at Chalmers University in Gothenburg, Linkoping, Helsinki and Sheffield. Tutors aimed to act as resources for, and facilitators of, learning and collaborative activity. Whilst some on-line seminar discussions were led by team-members, participants were likewise able to initiate discussion threads in all the course forums.

Technical environment. A key concept underpinning the technical environment for the course was that it should support active, collaborative and independent learning, and be perceived as far as possible by the user as an integrated Web application, offering easy and rapid access to a distributed range of facilities and resources. Key features of the interface, facilities and resources for the DEDICATE course were:

A frames-based Web environment, offering easy orientation and navigation within the site. The frames interface is also adopted to provide a conceptual "anchor" for participants in relation to their course activities, and to help reduce the problems of "getting lost in hyperspace" which are often encountered on the Web.

Easy access to all individual participants, tutors, and groups, as well as to information about them, and to work generated by them during the course.

Access to asynchronous conferencing facilities for group discussion and tutorial/technical support. The main discussion facility for the course is *Focus*, a UK Web product which supports Web-based, asynchronous conferencing and e-mail messaging. In addition to the main discussion forum within the conferencing environment, there were forums for each group, for discussion of technical issues, and for social chat.

Access to the *Into Info* programs and to the structured resource base.

Access to technical support in the form of links to information about using the discussion tools and other technical aspects of participating in the course, as well as e-mail links to the technical support team.

Implementation and evaluation

The course began with start-up meetings in October 1998 and at the time of writing Units 1 to 3 have been completed. In terms of concrete outcomes, one of the key aims of DEDICATE is to stimulate information literacy activity within participating institutions. Participants are currently hard at work on the design of their proposed Information Literacy courses. Through the vehicle of this project work, a range of initiatives have been established; it is planned that each of these will be implemented during the

academic year 1999/2000. Examples are:

Tallinn University of Technology, Estonia. Information literacy course for postgraduates in Computer and Systems Engineering, and Electronics and Biomedical Engineering Control. The course will carry University credits and is planned for Spring 2000.

Vesprem University, Hungary. Information searching in environmental protection and, specifically, in the problems of hazardous waste and air- water- and soil-pollution. Aimed at third year undergraduates on a 5-year Environmental Engineering course. Planned in collaboration with academic staff and due to be launched in autumn 1999.

Riga Technical University, Latvia. Information literacy course for students in the Faculty of Radioengineering and Telecommunications, planned for autumn 1999. In addition, chemistry information course for third year undergraduates in Chemistry and Chemical Technology, also planned for autumn 1999.

The DEDICATE course evaluation will be undertaken by means of a Web-based feedback questionnaire. Participants will be asked to assess whether or not their initial goals have been realised, and to provide feedback on the learning approach, the features of the learning environment, and the quality of technical and tutoring support. The ultimate test of the success of the DEDICATE project will be the production of viable Information Literacy courses which will be added to participants' university curricula.

Concluding remarks

There is a very real need for the development of information literacy training in Europe, and this is particularly important in view of the escalating rate of change in technical information transfer. We hope that the professional development activity and creation of information literacy programmes at the five participant sites will have spin-offs for wider-scale development of learner support initiatives within their countries, and that the DEDICATE model for networked professional development on this topic will be transferable to university library and information services throughout Europe. A number of dissemination activities are already under way and can be followed in the DEDICATE newsletter. A DEDICATE seminar will be held at the ICIMSS in Torun, Poland, in September 1999.

For the newsletter and further information about DEDICATE, please see the project's home page at: http://educate.lib.chalmers.se/DEDICATE/dedindex.html

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